

Notice of Allowability

Application No.

10/801,167

Examiner

Kamran Afshar, 571-272-7796

Applicant(s)

NGUYEN ET AL.

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 2/2/2007 & 2/5/2007.
2. ☒ The allowed claim(s) is/are 1-30.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).


* Certified copies not received: _____

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
(a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
(b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date 12/10/2004
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☒ Interview Summary (PTO-413),
Paper No./Mail Date _____
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____


GEORGE ENG
SUPERVISORY PATENT EXAMINER

DETAILED ACTION

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with *Mr. John J. Karasek*, Reg. No.: 36,182 & *Mr. LEGG, LAWRENCE*, Reg. No. 34, 208 on 2/2/2007, and 2/5/2007.

The application has been amended as follows:

In The Claims:

1. (Currently Amended) A Group TDMA method of providing multiple-access in a ~~multiple~~ multiple destination, multiple node wireless network, said network including a first destination having a first group of nodes (~~Group 1~~) within communication range thereof and a second destination having a second group of nodes (~~Group 2~~) within communication range thereof, wherein both said first and second destinations include a third group of nodes (~~Group 3~~) within communication range thereof of both said first and second destinations, and wherein each group of nodes is assigned a periodically recurring set of time slots for transmitting to a designated destination, comprising:

providing a frame of a specified duration; dividing the frame into a number of fixed-length time slots;

assigning a fraction $1-x$ of the time slots to said first and second groups of nodes;

assigning a fraction x of the time slots to said third group;

subdividing said third group into a fourth group of nodes (~~Group 31~~) and a fifth group of nodes (~~Group 32~~);

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assigning a fraction y of the fraction x time slots to said fourth group for transmission to said first destination and a fraction $1-y$ of the fraction x time slots to said fifth group for transmission to said second destination;

applying a multiple-access protocol in each group in its assigned set of time slots;
and

optimizing the values of x and y in order to realize the maximum possible value of stable throughput rate λ^* , and transmitting to said designated destination in response to the maximum possible value of stable throughput rate λ^* .

16. (Currently Amended) A Group TDMA multiple access, multiple destination, multiple node wireless network, comprising:

a first destination having a first group of nodes (~~Group 1~~) within communication range thereof;

a second destination having a second group of nodes (~~Group 2~~) within communication range thereof;

wherein said first and second destinations further include a third group of nodes (~~Group 3~~) within communication range thereof of both said first and second destinations and wherein each group of nodes is assigned a periodically recurring set of time slots for transmitting to a designated destination; and

a processor, said processor programmed for:

dividing the frame into a number of fixed-length time slots;

assigning a fraction $1-x$ of the time slots to said first and second groups of nodes;

assigning a fraction x of the time slots to said third group;

subdividing said third group into a fourth group of nodes (~~Group 31~~) and a fifth group of nodes (~~Group 32~~);

assigning a fraction y of the fraction x time slots to said fourth group for transmission to said first destination and a fraction $1-y$ of the fraction x time slots to said fifth group for transmission to said second destination;

applying a multiple-access protocol to each group in its assigned set of time slots; and

optimizing the values of x and y in order to realize the maximum possible value of stable throughput rate λ^* , and transmitting to said designated destination in response to the maximum possible value of stable throughput rate λ^* .

Allowable Subject Matter

2. In view of the amended claims as discussed above, Claims 1-30 are allowed.

The following is an examiner's statement of reasons for allowance: 1-30.

With respect to claim 1, Worley (U.S. Patent 5805,576 A) is the closest prior art to the application invention, which discloses a Group TDMA method of providing multiple-access in a multiple destination, multiple node wireless network, the network including a first destination having a first group of nodes within communication range thereof and a second destination having a second group of nodes within communication range thereof, wherein both the first and second destinations include a third group of nodes (~~Group 3~~) within communication range thereof of both the first and second destinations (See e.g. Abstract, Co. 5, Lines 18-45, Co. 6 Line 60 – Co. 7, Line 9, Figs. 1-12),

Papadopoulos (U.S. Patent 5,594,720 A) discloses and wherein each group of nodes is assigned a periodically recurring set of time slots for transmitting to a designated destination providing a frame of a specified duration; dividing the frame into a number of fixed-length time slots (See e.g. Abstract, Co. 1, Lines 15-20, Co. 2, Lines 2, 32-45, Figs 1-12.).

However, the prior art of record fails to disclose singly or in combination or render obvious that the method comprising: assigning a fraction $1-x$ of the time slots to the first and second groups of nodes; assigning a fraction x of the time slots to the third group; subdividing the third group into a fourth group of nodes and a fifth group of nodes; assigning a fraction y of the fraction x time slots to the fourth group for

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transmission to the first destination and a fraction $1-y$ of the fraction x time slots to the fifth group for transmission to the second destination; applying a multiple-access protocol in each group in its assigned set of time slots; and optimizing the values of x and y in order to realize the maximum possible value of stable throughput rate λ^* .

With respect to claim 16, the prior art of record fails to disclose singly or in combination or render obvious that the processor programmed for: assigning a fraction $1-x$ of the time slots to the first and second groups of nodes; assigning a fraction x of the time slots to the third group; subdividing the third group into a fourth group of nodes and a fifth group of nodes; assigning a fraction y of the fraction x time slots to the fourth group for transmission to the first destination and a fraction $1-y$ of the fraction x time slots to the fifth group for transmission to the second destination; applying a multiple-access protocol to each group in its assigned set of time slots; and optimizing the values of x and y in order to realize the maximum possible value of stable throughput rate λ^* .

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a) Hamalainen (U.S. 6,967,943 B1).

f) Skillemark (U.S. 6,993,339 B2).

b) Ayyagari (U.S. 6,894,991 B2).

g) Pan (U.S. 6,996,078 B2).

c) Young (U.S. 6,628,636 B1).

h) Dupuy (U.S. 5,483,537 A).

d) Trossen (U.S. 7,054,643 B2).

i) Young (U.S. Pub. No.: 2003/0067906 A1).

e) Gardner (U.S. 6,038,455 A).

g) Kayama (U.S. Pub. No.: 2003/0017830 A1).


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Any inquiry concerning this communication or earlier communication from the examiner should be directed to Kamran Afshar whose telephone number is (571) 272-7796. The examiner can be reached on Monday-Friday.

If attempts to reach the examiner by the telephone are unsuccessful, the examiner's supervisor, Eng, George can be reached @ (571) 272-3984. The fax number for the organization where this application or proceeding is assigned is **571-273-8300** for all communications.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Kamran Afshar


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SUPERVISORY PATENT EXAMINER